tional reform, child labour, the delinquent child, the neglected child. The author insists on the importance of securing the cooperation of women, but he omits to point out that until they possess the power and status of citizenship their power of helping will be crippled. The volume can be warmly recommended as a wise and human study of immensely difficult and important questions. Its value is enhanced by a full biography and an index. The type is clear and the printing good.

Der Begriff des Instinktes einst und jetzt. Eine Studie über die Geschichte und die Grundlagen der Tierpsychologie. By Prof. Heinrich Ernst Ziegler. Second revised and enlarged edition. Pp. vi+112+2 plates. (Jena: Gustav Fischer, 1910.) Price 3 marks.

THIS is a revised and enlarged edition of a luminous essay which Prof. Ziegler contributed to the Weismann Festschrift in 1904. It deserves to be widely known as a terse and interesting introduction to comparative psychology. The treatment is in the main historical, and the author makes a point of showing how the conception of instinct has mirrored the progress of science.

From the views of the Greek philosophers, the Church, and the old Vitalists, the author passes to Darwin and the Lamarckians, and thence to modern comparative psychology, as represented by workers like Lloyd Morgan, Groos, and Zur Strassen. Ziegler himself, following Weismann, interprets instincts as the outcome of the selection of germinal variations; they are now part of the inheritance and are objectively represented by pre-established nerve-paths. In his discussion he insists upon keeping to an objective consideration, for it is impossible to discover how far the lower animals are conscious.

In contrast to instinctive behaviour, we may speak of intelligent behaviour when it is worked out by the individual's experiments, when it requires to be learnt, when it is individually adjusted to particular circumstances. But when we reflect how little we know, for instance, in regard to the distribution of feelings of pleasure and pain among animals, we see the advisability of trying to define the grades of behaviour as objectively as possible. The author is, therefore, resolute in leaving consciousness and feeling and perception of purpose entirely out of account in his conception of instinct. At the close of the volume—which is all too short—there is an interesting appendix showing how the brains of workers, queens, and males among ants and bees differ from one another, as their instincts do.

Licht und Farbe. By Robert Geigel. (Pp. 199. (Leipzig: Philipp Reclam, junr., n.d.) Price 60 pfennig.

THIS little book belongs to a collection of volumes on "natural science" published in the series known as the "Universal Bibliothek," which is so familiar to students of German literature in this country, and which, in Germany, by providing, at the lowest possible cost, translations of the masterpieces of foreign literature, has helped to make the best books in many languages known to all classes of readers. The price of the usual small volume or "unit" of about a hundred pages is 20 pf.: a number of such units may make one book; thus the "Nibelungenlied" extends to four "units," and may be bought for about tenpence. Three units go to make the present volume, which is illustrated by seventy-five drawings in the text, and, in addition, four coloured plates—as well as a photograph of the author—all well printed.

The aim of this volume is to give a simple, popular account of the properties of light, and especially of phenomena connected with variation in wave-lengths, or colour. From this point of view the ground covered is sufficiently extended: spectrum analysis, fluorescence, interference, polarisation, colour photography, meteorological optics, are all dealt with, in addition to the theory of instruments and photometry.

It would be idle to discuss such a book in any detail. In the nature of the case a work in German intended to give some popular account of elementary scientific ideas can have but little interest for English readers. Clerk Maxwell's "Matter and Motion" is a classic: this volume can pretend to no such distinction. We have not found it inspiring, and in lucidity it might be improved. There is a tendency to regard the general reader too much as a child, and in one instance at least the treatment is directly unscientific in giving as consequences of a law the facts which that law was invented to resume. On the whole, however, the book gives a tolerably readable elementary account of the branches of optics with which it is concerned, and no doubt will enable many a German to take an intelligent interest in matters in which he is not a specialist.

Catalogue of the Lepidoptera Phalaenae in the British Museum. Vol. x., Noctuidæ. (London: Printed by order of the Trustees, British Museum (Nat. Hist.). Price 20*s*.

THE tenth volume of this important work contains more pages than any which has yet been published, vol. vii., the largest of the preceding volumes, containing only 709 pages; and vol. ix. only 522, as against 829 pages in vol. x. The series of plates relating to vol. x. will include plates 148–173, and will be published early in 1911.

Vol. x. is devoted to the Erastrianæ, the thirteenth out of the fifteen subfamilies recognised by the author in the Noctuidæ, and contains descriptions of 1222 species (numbered from 4987 to 6197) belonging to 136 genera, a considerable number, both of genera and species, being described as new. There now remain only the subfamilies Hypeninæ and Hyblæinæ to complete the great group of Noctuidæ which, according to the provisional arrangement of families of Lepidoptera in the first volume of the present work, is only the fourth of fifty-two families, and is placed between the Agaristidæ and the Pterothysanidæ.

The Erastrianæ are moths of comparatively small size, and are very varied in their colour and markings, but the so-called "Noctud-pattern" is rarely present. "The subfamily is to a large extent confined to the tropical and warmer temperate regions, especially the more arid districts, and it has few species in the colder zones, and none in the Arctic and Alpine zones." A few species are British, but though some are abundant in special localities, they are not generally common.

The rapid progress which it has been found possible to make with so bulky and extensive a work is most remarkable, this being the second volume issued in 1910; and a volume appeared in each of the two preceding years.

Photography in Colours: A Text-book for Amateurs, with a Chapter on Kinematography in the Colours of Nature. By Dr. Geo. L. Johnson. Pp. viii+143. (London: Ward and Co., 1910.) Price 3*s*. 6*d*. net.

THE author has rewritten and enlarged the last section of his "Photographic Optics and Colour Photography," and in this volume issues it separately. Being "for amateurs," only those processes that are practically suitable for this class of workers are included, excepting the final chapter on kinematography. Indeed, the subject has been narrowed still further, for the only method treated of with any

© 1911 Nature Publishing Group

fulness is the single-plate or screen-plate process. Here evidently the author writes with considerable experience and even enthusiasm, and as those parts that deal with the "autochrome," "dioptichrome," "Thames," and "omnicolore" plates have been revised by the respective makers of these plates, there is excellent guarantee that the details given are trustworthy.

There is always a difficulty when entering into particulars on such a subject, that commercial products are liable to vary, and it is often impossible for one person to know the extent of this variation in every section of the subject. Just one example will indicate the need for bearing this in mind. Dr. Johnson says of the "dioptichrome" plate that the "first black condition is very perfectly fulfilled." That means that the red, green, and blue patches on the colour screen are so proportioned that the general colour presented to the eye is a pure grey. We have just examined two screens of this make, and one is a rather fine green and the other pinkish. The preliminary chapters on the eye, colour vision, and colour blindness, although short, are of much interest.

Tables for Calculation of Rock-Analyses. By Alfred Harker, F.R.S. (Cambridge: University Press, 1910.) Price 1*s*.

CHEMICAL analyses of rocks are constantly becoming more refined and complete, and, in consequence, if accurately interpreted, are of increasing value to the petrologist. Systems of rock-classification that depend on chemical composition are also now in favour. For these and other reasons it becomes desirable that the percentages of components as stated in a rock-analysis should be translated as easily as possible into percentages of the constituent rock-forming minerals. Mr. Harker's tables are designed to meet this want, and they have so many valuable features that they should be in the hands of all teachers of petrology. They are very compact, and consequently are cheap compared with the books hitherto in use for this purpose; much time may be saved by their use and long calculations avoided. The method adopted is simple and exceedingly ingenious, and with these tables a student who has not hitherto attempted calculations of this sort may make them more rapidly and even more accurately than by any of the methods formerly in use.

Populäre Vorträge aus dem Gebiete der Entwickelungslehre. By Dr. Wilhelm Breitenbach. Pp. vi+264. (Brackwede i. W.: Verlag von Dr. W. Breitenbach, 1910.) Price 3 marks.

THIS little book consists of six popular lectures, dealing respectively with the origin of life, recent theories of heredity, fifty years of Darwinism, Fritz Müller, the prince of observers, Hermann Müller, and the history of the human race. They are written in a clear and interesting style, and, apart from their scientific value, may be strongly recommended to English students of biology who desire to improve their acquaintance with the German language.

Open-air Studies in Botany: Sketches of British Wild Flowers in their Homes. By R. L. Praeger. Second edition, revised. Pp. xiii+266. (London: Charles Griffin and Co., Ltd., 1910.) Price 6*s*. net.

THE first edition of this book was reviewed in NATURE of June 16, 1898 (vol. lviii, p. 150). The present issue has been revised throughout, but little alteration has been made. The nomenclature has been changed where necessary to follow that used in the "List of British Seed-plants and Ferns," published by the British Museum in 1907.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

A Perpetual Calendar.

I CANNOT allow the article signed by "W. T. L." in NATURE of February 2 to pass without a protest. The proposal to make "New Year's Day" a *dies non*, named "New Year's Day," and not a day of the week or of the month, emanated, I believe, from Mr. Alexander Philip, of Brechin. Supposing that January 1 were a Sunday, and supposing that March, June, September, and December were given 31 days, the other months 30 each, February 1 would always fall on a Tuesday, March 1 on a Thursday, and so on. This would save much trouble in arranging dates for meetings. But, more important still, the four "quarters" of the year would be equal, instead of, as at present, consisting of 90, 91, 92, and 92 days. From testimony by railway companies, insurance offices, chambers of commerce, and business men, an alteration which would equalise terms would meet with universal approval. It is difficult to see where the trouble mentioned by your contributor would come in. It may be stated that authorities in the leading churches have been consulted, and that apparently no objection would be raised by them. I am informed that the Belgian Foreign Office has addressed a diplomatic inquiry at the Vatican, and that the Holy See is not opposed to the reform of the calendar. Surely the organ of English science is not going to oppose a useful innovation, acceptable to all practical men, which would save an enormous amount of labour in accounting and would simplify all business arrangements. WILLIAM RAMSAY.

University College, Gower Street, London, W.C.,
February 3.

ALTERATIONS in so fundamental a matter as the regulation of time and of the calendar must always give trouble, and should not be adopted unless very great advantages would result from the change. Now it appears to the writer that no such advantage would be obtained by making the days of the week always correspond to those of the month; indeed, in the arrangements of life it is often found convenient that they should *not* correspond. As to the lengths of the quarters being now unequal, they could be rendered as equal as possible by the simple process of restoring the original regulation of Julius Cæsar, according to which February had 29 days in common years and 30 days in leap-years, and August had only 30 days. Very serious inconvenience would probably result from the ignoring of a day every year, particularly as this would have to be extended to two days in leap-year.

W. T. L.

The Progressive Disclosure of the Entire Atmosphere of the Sun.

SOME of the remarkable spectroheliograms which you reproduce in connection with your report of M. Deslandres' lecture, delivered by that gentleman at the Royal Institution on June 12, 1910, call for special comment. This applies more especially to the pair which represents the sun for March 21, 1910. I had the good fortune to observe spectroscopically an exceptionally fine prominence, which persisted for two entire synodic rotations. During some of the early days in March it graced the west limb, then reappeared in the east about a fortnight later, showed again in the west, reappeared in the east once more towards the middle of April, and gave a final appearance in somewhat modified form on the west limb on April 28. It is fully described and illustrated in an interesting note by Dr. F. Slocum in the *Astrophysical Journal* for September, 1910.

This prominence, while of fair altitude, was more conspicuous with regard to its latitudinal extent. But as regards altitude, it should be mentioned here that the Yerkes photographs were taken in calcium light, while my spectroscopic observations were made in hydrogen Hα light, and I have noted on many occasions, before and

© 1911 Nature Publishing Group